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ABSTRACT

Investigated was the relationship between academic achievement and self concept with a total of 37 learning disabled (LD) children (between the ages of 8 and 14 years) of whom 19 were enrolled in self contained special classes and 18 were receiving services from resource teachers. Ss were administered the Primary Self Concept Inventory and the Wide Range Achievement Test. Results indicated that LD children in the two settings did not differ in academic achievement or self concept and that there was little correlation between academic achievement and self concept as measured in the study for this population. (DB)

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# INVESTIGATION OF THE RELATIONSHIPS BETWEEN ACADEMIC ACHIEVEMENT AND SELF-CONCEPT IN CHILDREN WITH SPECIFIC LEARNING DISABILITIES

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# INVESTIGATION OF THE RELATIONSHIPS BETWEEN ACADEMIC ACHIEVEMENT AND SELF-CONCEPT IN CHILDREN WITH SPECIFIC LEARNING DISABILITIES

The purported relationship of self-concept to academic achievement has been a much investigated topic. Many writers contend that a child's self-concept plays a major role in the learning process. Generally, a spiraling cycle is hypothesized which is initiated when the learner recognizes his academic inefficiency and failure to meet societal expectations(See Figure 1).

The study reported herein investigates the relationship of self-concept and academic achievement in learning disabled children who are receiving services through two frequently employed service models: resource and self-contained. Two primary questions were addressed:

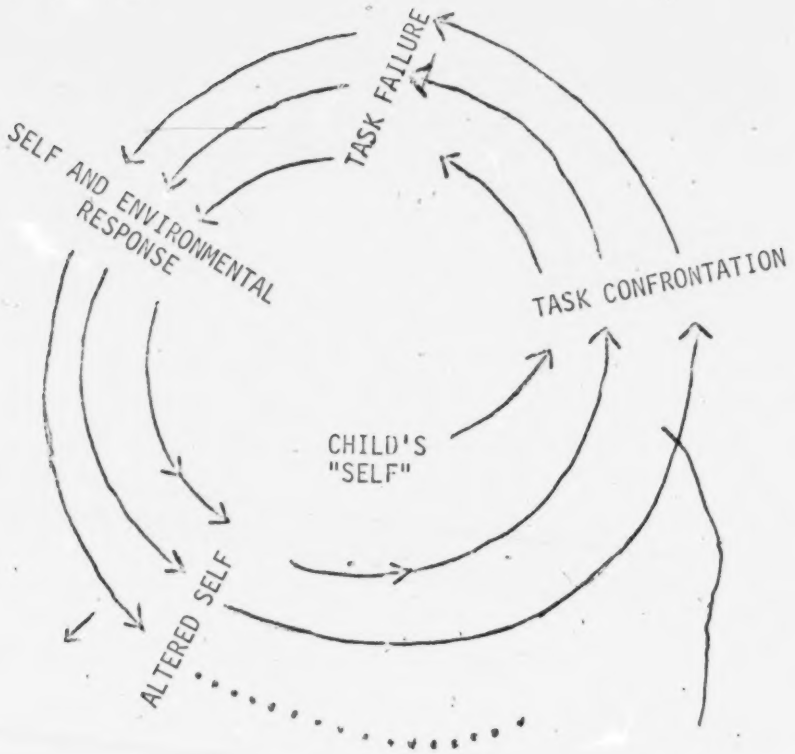
(1) Do learning disabled children who are served through resource and self-contained programs differ in self-concept?

(2) What is the nature and degree of the relationship between self-concept and academic achievement of learning disabled children?

Numerous empirical investigations of the relationship of self-concept and academic achievement have been reported. Leviton (1975) provides a rather extensive review of research since the middle 1950's. Unfortunately, the measures employed for self-concept and academic achievement in the studies reviewed are diverse. In fact, of the twenty-two, where procedures were described, at least ten different instruments were used. Nevertheless,

FIGURE I

SPIRALING SELF-CONCEPT FORMATION IN
CHILDREN WITH LEARNING PROBLEMS



Leviton concludes that a consistent moderate correlation exists between academic achievement and self-concept. Black (1974) states that reported correlation coefficients have clustered around .30.

Recent studies by Primavera et. al. (1974), Simon and Simon (1975) Cole (1974) and Busby et. al. (1974) further support Levitan's conclusions of the observed relationship.

Primavera et. al. (1974) investigated the relationship between academic achievement and self-concept along sex differences. Middle class subjects (male = 77, female = 103, mean C.A. = 11.06), were administered the Coopersmith Self-Esteem Inventory (SEI) and subtests from two standardized achievement tests. SEI data was collected four months after the achievement testing. All Pearson product-moment correlations were found to be significant between self-concept and achievement in the total and female group. However, only one correlation (self-esteem and mathematics) was found to be significant for the male group.

Following the study by Primavera et. al., Simon and Simon (1975) explored the relationship between self-esteem as measured by the Coopersmith SEI, SRA Achievement Series and the Lorge-Thorndike Intelligence Test. The correlation between SEI and SRA scores was found to be .342 ($p < .05$) for males and .337 ($p < .05$) for females. This finding was interpreted as consistent with other findings.

Cole (1974), investigated the relationship between self-concept, attitude, achievement motivation and academic achievement of one hundred average third grade students. Data was collected using the Metropolitan Achievement Test and then eight months later the Children's Self-Concept Index and Children's Attitudinal Ranges Indicator. The data yielded low (.173 to .262)

positive and significant correlation coefficients ($p < .05$) for academic achievement areas except spelling.

Busby, et. al. (1974), studied the relationship of self-concept, visual perception and reading in randomly selected seventh and ninth grade students ($n_1 = 50$, $n_2 = 50$). Instruments used were the Tennessee Self-Concept Scale, spatial visualization tests, and selected scores from the Stanford Achievement Test which had been previously administered. In terms of the correlation between academic achievement and self-concept, seven of the self-concept components yielded low, significant correlation coefficients (from .20 to .31).

The studies reviewed thus far offer support to the position that a significant, positive relation exists between academic achievement and self-concept. However, Williams (1973) reported his investigation of self-concept and reading achievement in first grade children ($n = 133$). Reading achievement was assessed using the California Achievement Test with self-concept data collected from an adaptation of Coopersmith's SEI. Data was collected at different time periods. Williams failed to find signficant correlations between self-concept and reading achievement in either first or second grade. Three interpretations were offered: (1) that the age level of subjects may have influenced the relationship, (2) that self-concept of young children may be subject to wide fluctuation, and (3) that the modified SEI may not have been sufficiently sensitive.

Marx and Winne (1975) investigated a predominately black lower socio-economic group of fifth and sixth graders ($n_1 = 38$, $n_2 = 60$, respectively). All children were administered the Stanford Achievement Test and Sears Self-Concept Inventory. Findings suggest that the relationship between self-concept and achievement is weak.

Two final studies directly related to the study presented herein investigated the relationship of academic achievement and self-concept in children with learning disabilities. Black (1974) studied 25 normal and 25 retarded readers using the Piers-Harris Children's Self-Concept Test and Wide Range Achievement Test. The level of self-concept for learning disabled children was found to be related to the degree of their under-achievement. This result tends to support the hypothesis of the circular relationship between self-concept and achievement.

Contradictory findings were reported by Leviton and Kiraly (1975) based on the Metropolitan Achievement Test and Self-Concept Self-Appraisal Inventory (1970). Sixty-four learning disabled children in grades one, two and three were included who would seem to meet the 1968 National Advisory Committee's definition requiring exclusion of other primary handicapping conditions. No relationships of significant magnitude were found and the correlations were generally negative in sign.

## THE STUDY

### Subjects

A total of 37 children between the ages of 8-4 and 14-7 were selected as subjects. Nineteen of these were enrolled in a private self-contained program for learning disabled children and eighteen were receiving services from LD Resource Teachers in a public school setting. The two groups were comparable in terms of age and sex (See Table 1). Each subject had been diagnosed as learning disabled by a trained psychologist using the definition specified by the National Advisory Committee on Learning Disabilities (1968) and adopted by the State of Virginia (See Attachment A).

### Test Administration

The 1975 revision of the Primary Self-Concept Inventory (Muller, Larned, and Leonetti) and the Wide Range Achievement Test (Jastak and Jastak, 1965) were administered to each of the 37 subjects by one of the authors and two graduate assistants. To reduce the influence of test order, the order of their presentation was randomized. Testing was completed in one session with groups of three being administered the PSCI and with individual administration of the WRAT. Total testing time was approximately one and one-fourth hours.

Instrument selection was primarily based upon the authors' subjective judgment. It was the opinion of the investigators that the probability of an accurate reflection of self-concept of learning disabled children would be increased if the task could remain academically neutral. Responding to the stick figure representations of the PSCI was judged to be less threatening than other interview techniques. The Wide Range Achievement Test was selected because of its brevity and demonstrated validity.

TABLE 1

DESCRIPTIVE STATISTICS PERTAINING TO SEX AND AGE OF SUBJECTS

| | Sample Size | | | Age | |
|---|---|---|---|---|---|
| | Male | Female | Total | Mean | SD |
| Self-Contained | 17 | 2 | 19 | 11.39 | 1.78 |
| Resource | 12 | 6 | 18 | 11.55 | 1.69 |
| Total | 19 | 8 | 37 | 11.47 | 1.74 |

For the reader unfamiliar with the PSCI, the instrument is designed to measure five factors of self-concept. These include: physical size, school adaptiveness, social, helpfulness and successfulness. In the 1975 revision, responses of these factors are assessed by twenty-three items. For each item, the subject is asked to indicate which pictorial representation is most like himself by circling the letter above the selected picture. This procedure is used to obtain the child's cognitive score or the way he subjectively views himself. The child is then directed to indicate how he feels about being the child he has indicated he is by circling the letter over a "happy" or "sad" face which appears at the bottom of each page. The happy-sad responses are summed to yield an affective score.

## METHODOLOGY

### Academic Achievement

Prior to examining the relationship between self-concept and academic achievement it was necessary to determine if children in the resource and self-contained programs differ in academic achievement. More specifically, the composite hypothesis is of interest in that learning disabled children in resource and self-contained programs perform equally well on the three components of the WRAT. As the measurements on each of these three sub-tests can be assumed to be normally distributed, the appropriate statistic procedure in the multivariate analog to the univariate pooled t-test (Morrison, 1967) was used. The value of Hotelling's $T^2$ for this sample is 4.45 with 1 and 35 degrees of freedom. The probability of obtaining a value greater than 4.45 under the null hypothesis is approximately 0.26. Consequently, the data obtained does not support the supposition that differences in academic achievement exist between learning disabled children served through resource and self-contained programs.

### Self-Concept

As noted earlier, the PSCI purports to measure self-concept via five factors. Respondents are assessed in two ways on each of these factors, i.e., a cognitive response and an affective response. All responses are of ordinal scale. Thus, for the variable of self-concept, there exist ten responses for each of the 37 experimental subjects. In the investigation of question (1), the Mann-Whitney U test (Siegel, 1956) was used to determine if children in the two programs differ in either their cognitive responses or their affective responses to each of the five factors. Since the tests of these ten hypotheses are not necessarily independent, the level of significance

for each test was fixed at the 0.01 level. This procedure establishes an upper bound of 0.1 for the experimental wise Type I error rate (Miller, 1966). No differences in responses between the two groups were detected in any of the ten tests. This same conclusion would have been reached if each of the tests had been conducted at the 0.05 level of significance.

Relationship Between Academic Achievement and Self-Concept

In the investigation of the relationship between academic achievement and self-concept, the subjects in the resource and self-contained programs were combined since there was no evidence that the two groups differed in either academic achievement or self-concept. The reader will recall that measurements on the WRAT subtests and the PSCI factors were, respectively, of interval and ordinal scale. Consequently, the measure of association used in the investigation of the relationships of interest was Spearman's coefficient of rank correlation.

The intercorrelations between the three subtests of the WRAT and the five cognitive factors of the PSCI are shown in Table 3. The reader is referred to Table 2 for the identification of the variables corresponding to this correlation matrix. As one would expect, Table 3 shows high positive correlations between the three WRAT subtests. The only significant association between components of the WRAT and those of the PSCI is in the negative correlation -0.3530 corresponding to the WRAT arithmetic subtest and the PSCI social cognitive factor. A significant association was also found between the physical size and successfulness cognitive factors of the PSCI.

TABLE 2

NOTATION FOR COMPONENTS OF
WRAT AND PSCI TESTS

| | |
|---|---|
| 1 | WRAT reading score |
| 2 | WRAT arithmetic score |
| 3 | WRAT spelling score |
| $4^c$ | PSCI physical size cognitive factor score |
| $5^c$ | PSCI school adaptiveness cognitive factor score |
| $6^c$ | PSCI social cognitive factor score |
| $7^c$ | PSCI helpfulness cognitive factor score |
| $8^c$ | PSCI successfulness cognitive factor score |
| $4^a$ | PSCI physical size affective factor score |
| $5^a$ | PSCI school adaptiveness affective factor score |
| $6^a$ | PSCI social affective factor score |
| $7^a$ | PSCI helpfulness affective factor score |
| $8^a$ | PSCI successfulness affective factor score |

TABLE 3

INTERCORRELATIONS OF WRAT AND PSCI
COGNITIVE TEST SCORES (N = 37)

| | 1 | 2 | 3 | 4[C] | 5[C] | 6[C] | 7[C] | 8[C] |
|---|---|---|---|---|---|---|---|---|
| 1 | - | | | | | | | |
| 2 | .6206* | - | | | | | | |
| 3 | .8508* | .6750* | - | | | | | |
| 4[C] | -.2433 | -.1285 | -.1380 | - | | | | |
| 5[C] | .0261 | -.0895 | .0614 | -.0341 | - | | | |
| 6[C] | -.2368 | -.3530** | -.3025 | .1769 | .1755 | - | | |
| 7[C] | -.0834 | .1019 | .0606 | .1381 | -.0709 | -.1451 | - | |
| 8[C] | -.2144 | -.2452 | -.2480 | .4256* | .2050 | .0302 | .0607 | - |

*Signficant at the 0.01 level
**Significant at the 0.1 level

Table 4 provides the intercorrelations between the WRAT subtests and the five affective factors of the PSCI. Perusal of this correlation matrix shows that no significant associations exist between the components of the WRAT and those of the PSCI. It can also be seen that eight of the ten possible pair combinations of affective factors have significant correlations. Their result is somewhat surprising since the five factors comprising the PSCI are presented as independent.

The correlation matrix of Table 5 consists of the intercorrelations between the cognitive and affective factors of the PSCI. Elements along the main diagonal are the correlations between the cognitive factors and their affective counterparts. Thus, it can be seen that only the cognitive and affective scores on the factor physical size are unrelated. It is interesting to note that the association is negative with respect to the factor helpfulness. Examination of the off-diagonal shows that a significant correlation exists only between cognitive responses to the factor successfulness and affective responses to the factor school adaptiveness.

TABLE 4

INTERCORRELATIONS OF WRAT AND PSCI
AFFECTIVE TEST SCORES (N = 37)

| | 1 | 2 | 3 | 4[a] | 5[a] | 6[a] | 7[a] | 8[a] |
|---|---|---|---|---|---|---|---|---|
| 1 | - | | | | | | | |
| 2 | .6206* | - | | | | | | |
| 3 | .8508* | .6750* | - | | | | | |
| 4[a] | -.0763 | -.1542 | -.1450 | - | | | | |
| 5[a] | .0103 | -.0829 | -.0196 | .4958* | - | | | |
| 6[a] | -.0610 | -.1324 | -.0816 | .3286** | .3453** | - | | |
| 7[a] | .1996 | -.0438 | .0663 | .3306** | .4763* | .4270* | - | |
| 8[a] | -.1161 | -.1962 | -.2721 | .2545 | .4929* | .2668 | .3325** | - |

*Significant at the 0.01 level
**Significant at the 0.1 level

TABLE 5

INTERCORRELATIONS OF PSCI COGNITIVE
AND PSCI AFFECTIVE TEST SCORES (N = 37)

| | 4[a] | 5[a] | 6[a] | 7[a] | 8[a] |
|---|---|---|---|---|---|
| 4[c] | .0525 | .0841 | .2407 | -0.0849 | .2954 |
| 5[c] | .1462 | .3953** | -.1462 | .2536 | .1150 |
| 6[c] | .1739 | .1693 | .5765* | .2411 | .0798 |
| 7[c] | -.1707 | -.1531 | -.1820 | -.46158* | .1529 |
| 8[c] | .1065 | .3583** | .0806 | .2174 | .6475* |

*Significant at the 0.01 level
**Significant at the 0.05 level

## DISCUSSION

The results of this study suggest that learning disabled children in self-contained and resource programs do not differ in either academic achievement or self-concept. The authors caution the reader in making general inferences concerning these results. The primary motivation in this portion of the investigation was to determine if the two samples were homogeneous with respect to these two variables. Children included in the samples had been served for varying lengths of time in the two intervention models. It would be logical to assume that a substantial period of time would be required before a change in something as complex and presumably developmental as self-concept could be observed.

Findings corresponding to the relationship between academic achievement and self-concept are contradictory to those of studies in which subjects were not selected on the basis of academic difficulties. They are, however, in agreement with the results cited earlier of Leviton and Kiraly. The only significant correlation between the components of the WRAT and those of the PSCI was between the social factor in the cognitive domain and the arithmetic subtest. It is interesting to note that this is essentially the only pair combination that Primavera et. al. found to be significant in the male sample of their study. This is perhaps of importance since the sample employed in this study is predominately male.

The authors offer two explanations of the low correlations found in this investigation: (1) there exists little or no association between academic achievement and self-concept with respect to learning disabled

children or (2) the scaling of the PSCI is such that it does not lend itself to correlation studies. This latter possibility may also be raised with other instruments which have been used to assess self-concept.

ATTACHMENT A

STATE OF VIRGINIA DEFINITION OF
LEARNING DISABLED

Definition of Handicapped Children

Code of Virginia

1.3.5, Learning Disabled. Children with special learning disabilities are those children who exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written languages. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling, or arithmetic. They include conditions which have been referred to as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, developmental aphasia, etc. They do not include learning problems which are due primarily to visual, hearing or motor handicaps, or mental retardation, emotional disturbance or to environmental disadvantage.

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